INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2005/010867

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04B1/707

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, INSPEC, COMPENDEX, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WAHEED K ET AL: "Natural gradient based blind multi user detection in QPSK DS-CDMA systems" IJCNN 2003. PROCEEDINGS OF THE INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS 2003. PORTLAND, OR, JULY 20 - 24, 2003, INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS, NEW YORK, NY : IEEE, US, vol. VOL. 4 OF 4, 20 July 2003 (2003-07-20), pages 1862-1867, XP010652792 ISBN: 0-7803-7898-9	1-8, 12-16, 24-31, 35-39
A	the whole document	9-11, 32-34

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[X] Further documents are listed in the continuation of box C.

[ ] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 June 2005	19. 10. 05

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Giglietto, M

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
1 A	SALEM F. M., WAHEED K.: "State-space Feedforward and Feedback Structures for Blind Source Recovery" 3RD INTERNATIONAL CONFERENCE ON INDEPENDENT COMPONENT ANALYSIS AND BLIND SIGNAL SEPARATION, 9 December 2001 (2001-12-09), - 12 December 2001 (2001-12-12) pages 248-253, XP009048441 SAN DIEGO, CALIFORNIA the whole document ----	1-16, 24-39
1 A	WAHEED K., SALEM F.: "Blind Multi User Detection in DS-CDMA Systems using NAtural Gradient based Symbol Recovery Structures" 4TH INTERNATIONAL CONFERENCE ON INDEPENDENT COMPONENT ANALYSIS AND BLIND SIGNAL SEPARATION, 1 April 2003 (2003-04-01), - 4 April 2003 (2003-04-04) pages 727-732, XP009049098 NARA, JAPAN the whole document ----	1-16, 24-39
2		

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-16, 24-39

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16, 24-39

A natural gradient blind multi user detection (BMUD) network system and a corresponding method.

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2. claims: 17-23, 40-45

An adaptive detector and a corresponding method for a RAKE receiver using (info-theoretic) knowledge comprising an adaptive weighting matrix introduced into a RAKE receiver wherein the matrix is adaptively estimated using one of principal component analysis (PCA) or static blind source recovery (BSR) computational techniques.
